
6.0 BICYCLE PLAN



The Bicycle Plan is a modal element of the Mesa Transportation Plan. It establishes a coordinated strategy to encourage and develop bicycling as an integral part of the City's multi-modal transportation system. The Bicycle Plan provides guidance in five key areas:

- Supports implementation of the Transportation Element of the General Plan
- Identifies a preferred future network of bikeways
- Identifies vital end-of-trip facilities
- Integrates the bicycle network with transit service
- Promotes cycling through education, enforcement, and encouragement

The Importance of Bicycling

Bicycling is an important mode of travel for people in Mesa. It has a role in reducing congestion, improving air quality, providing travel choices, and providing greater mobility for those without access to a vehicle (children, elderly, and those who can't afford a private auto). Bicycling is also a choice for those with access to a car, because it is a healthy, relaxing activity to share with family and friends that can improve personal health through regular exercise.

The bicycle is a means of transportation that is quiet, non-polluting, extremely energy-efficient, and versatile. Bikeways offer an efficient use of public dollars and increase the carrying capacity of the overall transportation system.

Background

Bikeway facilities are described in three general categories: 1) bicycle lanes, 2) bicycle routes, and 3) shared use paths. A bicycle lane is a designated portion of the roadway, which is marked for bicycle use. Bicycle routes are designated with signs, and establish continuous routing for bicycle traffic. The third category, shared use path, is an exclusive facility for non-motorized travel (e.g., bicyclists, walkers, joggers, in-line skater, etc.) in its own corridor separated from vehicular traffic.

The City of Mesa prepared a bicycle plan in 1997. The plan discussed issues and needs, goals and objectives, and opportunities and constraints. The plan included an inventory of existing conditions by facility type (bicycle routes, bicycle lanes, and shared use paths) and recommendations for additional links. At the time the plan was prepared, the city had 62.4 miles of bicycle routes and 10.2 miles of bicycle lanes. The City of Mesa prepared and published its first bicycle map in August 1997. In addition to the City of Mesa Bicycle Plan, there are several other bicycle plans from the Maricopa Association of Governments (MAG) and neighboring communities that affect the City of Mesa, including the following:

- The Maricopa County Bicycle Transportation System Plan (1999)
- The MAG Regional Bicycle Plan (1999)
- The City of Chandler Bike Plan Update (1999)
- The Town of Gilbert Parks, Open Space and Trails Plan (1996)
- Southeast Valley Transportation Study (2000)
- MAG Regional Off-Street System Plan (2001)

The Cyclist

People ride bicycles for a variety of reasons, including personal health, concern for the environment, and relative cost to operating an automobile. People of all ages are bicycle riders, and come with a wide range of skill levels, riding speeds, and expectations. For example, the skilled rider may feel comfortable mixing with auto traffic on heavily traveled arterials, while the less experienced rider often feels more comfortable on paths separated from auto traffic, or along quiet residential streets. As such, it's important that the bicycle network provide a wide range of facilities to meet the needs and expectations of the community.

Trip Types

Bicycle travel falls into three general categories: 1) commuter travel; 2) utilitarian travel; and 3) recreational travel. The needs and destinations for each trip are different, and should be

considered when envisioning a citywide bicycle system. While many cyclists will travel greater distances, the typical range for facilities planning is 3.0 miles. In all cases, bicycling trips require a well-integrated system of bikeway facilities (e.g., bicycle lanes) and convenient, accessible end of trip facilities (e.g., bicycle parking).

Commuter

People who use bicycles as their choice for commuting to and from work generally prefer to travel on arterial streets to reach major destinations (a continuous network of shared-use paths along canals can also be effective for bicycle commuters). At the work end of their trip, commuters require secure, long-term parking or storage facilities. Other desirable facilities and services include showers, changing facilities, and convenient connections to transit.

Utilitarian

Utilitarian trips such as shopping or personal business are frequently made on arterial or collector streets. Direct, convenient connections are extremely important to the utilitarian cyclist. Cyclists making utilitarian trips require secure, short-term parking (usually convenient bicycle racks will suffice).

Recreation

Many recreational riders prefer to travel on bicycle paths or bicycle lanes on collector streets. Direct, quick routes are usually of less importance than other considerations (e.g., amenities, scenery, or physical exercise). Recreational cyclists are often destined to parks and other recreational areas, or may not have a specific destination in mind. Parking requirements are usually short-term, and are best served with bicycle racks.

Current Conditions

The City of Mesa has been very successful in recent years in enhancing and expanding the bikeway system. Each year, new bicycle lanes are being striped on arterial streets, and additions being made to shared-use paths along the canal system. In addition, most arterial street improvements now include bicycle lanes.

The location of existing bicycle routes, bicycle lanes, and bicycle paths in the planning area are shown in Figure 6-1. These include 70 miles of bicycle routes, 40 miles of bicycle lanes, and 1 mile of paved bicycle path with another 1.25 miles under construction (scheduled for completion

Figure 6-1

EXISTING BICYCLE FACILITIES

in Spring 2002). Mileage is calculated in linear miles; a linear mile of a bicycle route includes two miles of travel-way, one mile in each direction.

Future Bicycle System

As set forth by the Arizona Revised Statutes, a bicyclist in Arizona has the same rights and responsibilities as motorists when using public roadways. It is therefore necessary to design streets to allow cyclists to ride in a manner consistent with the vehicle code. Existing and future needs were evaluated to define a future bicycle system for the City of Mesa. The future system includes bicycle routes, bicycle lanes, and shared use paths, as well as recommendations for vital end-of-trip facilities. The following is a summary of five criteria that were considered in recommending future bicycle facilities; safety, access, physical barriers, continuity, and integration with transit.

Safety

The safety of cyclists is improved through facilities design, operations, and maintenance; public education programs; and improved security at destinations. The City of Mesa currently maintains bicycle facilities in good working order (e.g., regular street sweeping to remove broken glass and debris), and is systematically improving how the system operates for cyclists. For example, bicycle loop detectors are routinely placed in bike lanes at intersections with right turn lanes for autos, and push buttons are used throughout the City. Additionally, public outreach is aimed at improving how cyclists and motorists interact in a busy urban environment.

Access

It is important to provide connections for cyclists to their destinations – places of employment, shopping centers, schools, and recreational areas. Bicycle access should be provided between and through development sites (particularly in high demand areas like schools and parks).

Physical Barriers

A number of physical barriers exist that can greatly reduce the use of an otherwise inviting bicycle facility. Barriers that may be encountered in the City of Mesa include canals, railroads, narrow bridges, tight intersections, drainage structures, fences, and freeways. Several projects in the plan help reduce the impacts of barriers through alternate routing, improvements to existing/planned structures, and new bike structures.

Continuity

It is important to provide a bicycle system that offers a continuous, integrated network of routes, lanes, and shared-use paths. Small breaks in a bikeway tend to reduce overall use of the



Continuity through intersections provides convenience for cyclists.

facility. Providing well-delineated space for cyclists approaching intersections helps improve continuity of the overall bicycle network.

In general, it is desirable to develop a continuous network of bicycle facilities spaced at no more than one mile apart. Facilities were included in the future bicycle system that close gaps in the existing network, and that provide connections with neighboring jurisdictions. Special consideration should be given to ensure that connections are provided along the half-mile collector streets across the new freeway system in Mesa. In addition, it is desirable to develop a

network of interconnected local streets to improve bicycle circulation in and through residential neighborhoods. Bicycle routes were identified to improve mobility through areas where cyclists must travel more than one mile to access a designated facility.

Integration With Transit

Providing convenient access between bicycle facilities and transit routes (bus and light rail transit) can greatly increase the commuting distance available to cyclists. Alternatively, by providing bicycle/transit connections, a cyclist may choose to bike in the morning, and ride the bus home at night (an effective strategy in the summer for Mesa's hot desert climate).

Bicycle facilities included in this plan were coordinated with development of the Public Transportation Plan. Additionally, the design of future transit facilities, including transit centers and light rail stations, should consider the needs of cyclists (e.g., short- and long-term parking).

The proposed new facilities in the City of Mesa planning area are shown in Figure 6-2 and listed by facility type in the following sections.

On-Road Bikeways

Bicycles are allowed on all roadways within the City of Mesa with the exception of the freeways. On-road bikeways are created when a street includes appropriate design treatments to accommodate bicyclists. The basic treatments used in Mesa to accommodate bicyclists on roadways include shared roadways, bicycle routes, and bicycle lanes (graphics are from the Oregon Bicycle and Pedestrian Plan, Oregon Department of Transportation, 1995).

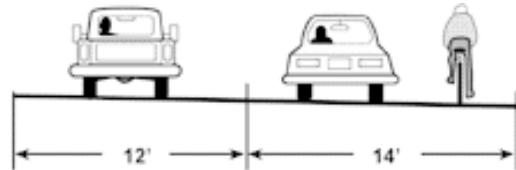
Figure 6-2
Future Bicycle Facilities

Shared Roadways

Bicyclists share the same travel lanes with motorists on shared roadways. Shared roadways are common on residential streets and along mid-section collectors. This type of configuration can be improved for cyclists by providing a wide outside travel lane, which typically allows an average size automobile to pass a cyclist without crossing into the adjacent lane.



Bicycle travel on a shared roadway.



A wide outside lane provides additional comfort for cyclists.

Bicycle Routes

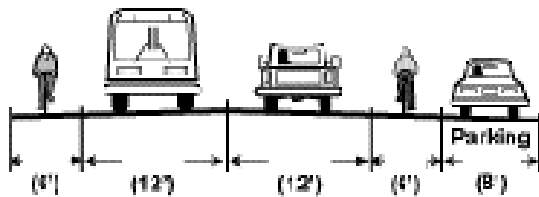
Bicycle routes typically are placed on arterial streets and lower volume half-mile streets that connect cyclists through neighborhoods. Bicycle routes are used in the City of Mesa to delineate preferred, direct routes for cyclists to use. Routes are signed to help direct cyclists and to warn motorists of the presence of cyclists, and may include an edge of pavement line for separation from vehicular traffic, although the area is not designated as a bicycle lane.



Bicycle routes include special signage.

Bicycle Lanes

A bicycle lane is a portion of a roadway designated for the preferential use of bicyclists. Bicycle lanes provide one-way travel in the same direction as vehicular traffic, and should always be provided on both sides of a two-way street. Bicycle lanes in the City of Mesa are of two types: either as a painted shoulder, or a lane shared with automobile parking. Bicycle lanes are 4 to 6.5 feet in width or 12 feet in width if shared with parked cars.



Typical bicycle lane

Bicycle lanes will be added to existing arterials with sufficient width and as streets are resurfaced. Bicycle lanes will also be added as part of overall street widening projects, and as arterials are constructed in developing areas. In particular, bicycle lanes should be added in the developing areas of Mesa (primarily in Northeast Mesa and Southeast Mesa) along an interconnected network of new half-mile collector streets.

**Table 6-1
Proposed Bicycle Routes**

| Road | Limits | Length (miles) |
|-------------------------|------------------------------------------|----------------|
| Dobson Road | Guadalupe - Keating | 0.25 |
| Country Club Drive | North City Limit - McLellan | 1.5 |
| Harris | 8 th St - 8 th Ave | 2.0 |
| Gilbert Road | Hampton - Baseline | 0.75 |
| 24 th Street | Pueblo - Consolidated Canal | 1.0 |
| 48 th Street | Greenfield - Adobe | 1.0 |
| 48 th Street | Southern - Baseline | 1 |
| 56 th Street | Main - Adobe | 1.0 |
| 63 rd Street | Main - Adobe | 1.0 |
| Power Road | North City Limit - Loop 202 | 1.5 |
| 72 nd Street | Superstition Springs - Brown | 3.5 |
| 80 th Street | Brown - Adobe | 0.5 |
| 80 th Street | Elliot - Warner | 1 |
| Hawes Road | Main - Southern | 1.5 |
| Hawes Road | Thomas - Brown | 3.5 |
| Hermosa Vista Drive | Higley - Recker | 1 |
| Hermosa Vista Drive | Sossaman - Ellsworth | 2 |
| Pueblo Ave | Hawes - Ellsworth | 1 |
| Mesquite Street | Sossaman - Ellsworth | 2 |

**Table 6-2
Proposed Bicycle Lanes**

| Roadway | Limits | Length (miles) |
|---------------------|---------------------------------------|---------------------------|
| Dobson Road | Western Canal – Guadalupe | 0.5 |
| Mesa Drive | McDowell – US 60 | 5.5 |
| Stapley Drive | McKellips – Harmony | 4.25 |
| Gilbert Road | North City Limit – Consolidated Canal | 3.25 |
| Val Vista Drive | North City Limit – Baseline Road | 7.0 |
| Greenfield Road | Pueblo- Baseline | 1.5 |
| Higley Road | North City Limit – US 60 | 7.0 |
| Recker Road | Thomas - Adobe | 3.5 |
| Power Road | Loop 202 – University | 3.5 |
| Power Road | Baseline – Williams Field | 5.0 |
| Sossaman Road | University - Ray | 6.75 |
| Hawes Road | Baseline - Ray | 4.0 |
| Ellsworth Road | US 60 – Germann | 7.5 |
| Ellsworth Road | McKellips - McLellan | 0.5 |
| Crismon Road | Germann – McKellips | 12.0 |
| Signal Butte Road | Germann – McKellips | 12.0 |
| Meridian Road | Baseline - Germann | 7.0 |
| Thomas Road | Gilbert – Val Vista | 2.0 |
| McDowell Road | Higley –Ellsworth | 5.0 |
| McDowell Road | Gilbert – Greenfield | 3.0 |
| McKellips Road | Ellsworth – Signal Butte | 2.0 |
| Brown Road | Center – Sun Valley | 9.0 |
| Brown Road | CAP - Meridian | 4.0 |
| University Drive | West City Limit – Extension | 1.75 |
| University Drive | Stapley – Meridian | 13.0 |
| Broadway Road | Stapley – Higley | 5.0 |
| Broadway Road | Sun Valley – Meridian | 6.0 |
| Southern Avenue | Country Club – RWCD Canal | 7.75 |
| Southern Avenue | Power – Meridian | 6.0 |
| Baseline Road | Harris – Consolidated Canal | 1.75 |
| Baseline Road | Power – Meridian | 6.0 |
| Elliot Road | Power – Meridian | 6.0 |
| Warner Road | Power - Meridian | 6.0 |
| Ray Road | Power - Meridian | 6.0 |
| Williams Field Road | Ellsworth - Meridian | 3.0 |
| Pecos Road | Power – Meridian | 6.0 |
| Germann Road | Sossaman - Meridian | 5.0 |

Shared-Use Paths

Shared-use paths typically are located along open space corridors such as canal banks, freeways, and utility corridors. Shared-use paths are usually used by all types of non-motorized forms of transportation including cyclists, pedestrians, joggers, in-line skaters, etc. Existing shared-use paths are along the Crosscut Canal (1 mile paved and 1 mile unpaved) and the RWCD Canal (2 miles unpaved).

With the provision of the shared-use paths, connections need to be made to route bicyclists to their destinations. Additionally, signage systems are needed to uniquely identify each trail segment with a number and/or a name. The identification system would be most useful to cyclists and hikers to locate their position and orientation to the trail network. Special attention should be focused on the trail/road crossings to ensure safety for mixed-mode crossings, particularly at mid-block crossings. Special provisions for public art should also be considered along canal paths.



Entrance to a shared-use path along a canal

Future shared-use paths were developed in concert with the City's Parks and Recreation Master Plan, and are listed below.

Proposed Shared-Use Paths

| | |
|-------------------------------------|------------|
| Western Canal | 3.0 miles |
| Tempe Canal | 5.25 miles |
| Eureka Canal | 0.5 miles |
| Crosscut Canal | 1.75 miles |
| Mesa Canal..... | 1.5 miles |
| Consolidated Canal | 8.0 miles |
| Eastern Canal | 6.5 miles |
| South Canal | 4.0 miles |
| RWCD Canal | 10.0 miles |
| CAP Canal | 9.0 miles |
| US 60: Loop 101 to Power Road | 12.0 miles |
| Power Line Easement..... | 3.5 miles |

End Of Trip Facilities

In addition to the bicycle lanes, routes, and paths provided for travel, other facilities and amenities help make bicycling a desirable choice for travel (e.g., destination signage, bicycle racks on buses, bicycle parking, showers and changing facilities, and storage lockers).

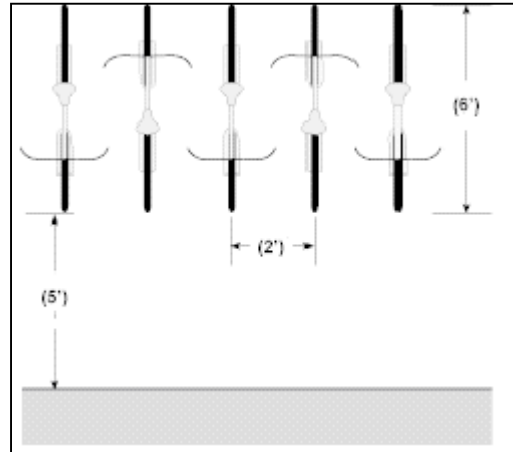
Bicycle Parking

The City of Mesa currently does not require private developments to include bicycle parking, putting cycling at a distinct disadvantage to auto drivers. The City should consider developing

specific requirements for the provision of appropriate bicycle parking and shower facilities. Appropriately designed bicycle parking makes access to commercial centers convenient and secure for cyclists. In relation to the space required for vehicular parking, bicycle parking is an economical use of urban space.



Convenient bicycle parking at a commercial establishment



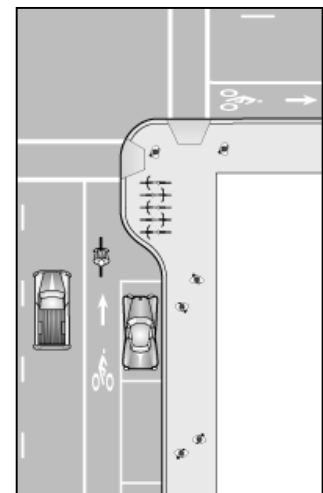
The dimensions of bicycle parking, ODOT, 1995

Bicycle parking should also be provided along sidewalks in high activity areas like Mesa Town Center. Care should be taken to ensure that the bicycle parking doesn't block pedestrian walkways or encourage cyclists to ride on the sidewalks. In areas with large numbers of cyclists and inadequate parking, people will find alternative, often undesirable places to secure their bikes.



Inadequate bicycle parking in an urban setting

Bicycle parking provided away from the main sidewalk area



Bike Stations

Bike Stations are a relatively new concept in the United States, but have been used in Europe and Japan for years. The purpose of a bike station is to provide amenities and services for

cyclists, typically commuters, at a central location. The first bike station in the United States was initiated in Long Beach, California, in 1996. Since that time, bike stations have grown in popularity. Amenities at the Long Beach Commuter Bike Station include parking for 150 bikes, quality bicycle rentals and repairs, changing rooms, a gear and accessories shop, bike-transit information, an outdoor café and coffee bar, and a commuter bike club. It is located in downtown Long Beach along the City's Transit Mall, which provides convenient transit access for cyclists.

In conjunction with a planned transit center in the Mesa Town Center, the City should investigate the feasibility of including space for a Bike Station. On a smaller scale, the City has provided bike rest areas along canal paths, which are valuable amenities to the community.

Costs

The cost for on-road bikeways is included with the Street Plan. An additional \$750,000 per mile is included for shared use paths. The total capital cost for 60.5 miles of shared-use paths is \$45.4 million.

Bikeway Maintenance

Routine maintenance is an important component of an effective bicycle system, as bikeways are subject to debris accumulation and deterioration. Poorly maintained facilities discourage use, and negate the impact of the initial investment in the facility. Roadway surfaces that are adequate for automobiles can be problematic for cyclists. Rocks, potholes, branches, and glass can damage bicycle tires and wheels, and may force the cyclist into automobile lanes if debris accumulation isn't routinely removed.

Bikeways should be swept regularly, and streets with designated bicycle facilities should receive priority in routine sweeping cycles. In addition, bikeways should be inspected routinely for surface irregularities and to maintain the condition of signing and striping along the roadway.

Pavement overlays offer opportunities to improve the riding surface for cyclists, and to restripe the street with bike lanes. During overlays, ridges should not be left in the area where cyclists ride. Pavement work around at-grade railroad crossings should be closely monitored to ensure that bikeways remain smooth and passable for cyclists. Similarly, utility cuts can also be problematic for cyclists; cuts that run parallel to bicycle traffic shouldn't leave a ridge in the bicycle wheel track.

Bicycle Safety, Education, and Enforcement

Safety is a critical component of a comprehensive bicycle program. Cyclists are exposed to a number of factors, including the elements and auto traffic, when riding in public rights-of-way. While engineering solutions exist to help reduce the incidence of accidents, educating both motorists and bicyclists can also greatly curtail unintentional infractions and promote safe riding and driving practices.

The City of Mesa has instituted a number of excellent education forums to improve public knowledge and understanding of cycling. Extensive outreach efforts with school children are helping increase understanding and awareness of bicycling and overall traffic safety issues. During *Bike Week 2001*, the City was able to increase the visibility both of bicycling and of bicycling infrastructure. By offering a wide variety of events, the City endeavored to reach a broad audience including City employees, law enforcement professionals, engineers, planners, families, and elected officials. The City's Bicycle and Pedestrian Program was awarded the Maricopa Association of Governments Golden Spoke Award for outstanding Bike Week 2001 events. The following events were held between March 24 and April 6, 2001:

- Cubs Spring Training Ride
- Bike To Work Day
- Mesa Police Department obstacle course
- Viewing of bicycling movie "Breaking Away"
- Bike shop displays
- Bike On Bus demonstrations
- Mayor's Breakfast and Ride
- Bike To Lunch
- "The Anatomy of Bicycle and Pedestrian Crashes" workshop (a national workshop on cycling safety sponsored by the City of Mesa)

Programs currently being developed include the projected addition of 50 miles of new bicycle lanes between June 2001 and June 2003, a wrong-way bicycling prevention campaign, formation of a Bicycle and Pedestrian Subcommittee of the Transportation Advisory Board, a helmet giveaway program, and updating the City of Mesa Bicycle Map. In addition, the City is preparing to apply for a Bicycle Friendly Community designation through the League of American Bicyclists.

Other efforts can be undertaken to improve cycling safety, including bicycle safety educational outreach program for children. The City can increase its coordination with schools, insurance companies, and others to sponsor bike fairs and other activities to continue teaching children bicycle safety and "rules of the road." Finally, the City should explore grant opportunities to

develop safety towns (all day events set up in parking lots to teach children about biking and walking) to help promote bicycle safety.

Law enforcement is another necessary component of bicycle safety. Typical problems that can be addressed through interaction among citizen advocates, advisory boards, and City staff include motorists not yielding to bicyclists, motorists not giving bicyclists enough room on the street, bicyclists disobeying traffic signals, wrong-way riding, etc. Bicycle police, as used in Mesa Town Center, are an important part of the solution. Through community education and support of enforcement efforts, the City can help build respect between bicyclists and motorists.